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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/629,232

07/28/2003

Hsieh Kun Lee

6566

25859

7590

07/03/2006

WEI TE CHUNG

FOXCONN INTERNATIONAL, INC.

1650 MEMOREX DRIVE

SANTA CLARA, CA 95050

EXAMINER

WRIGHT, INGRID D

ART UNIT

PAPER NUMBER

2835

DATE MAILED: 07/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/629,232

Applicant(s)

LEE ET AL.

Examiner

Ingrid Wright

Art Unit

2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/16/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-16 is/are pending in the application.
- 4a) Of the above claim(s) 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: 5 Attachments.

DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 102/103

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,4-7,9,11 & 13-15 are rejected under 35 U.S.C. 103(a) as obvious over Katsui US 5559674 B2.

Note: See attached fig. 1, 2 & 4B of Katsui for elements representing claimed limitations in the instant application.

With respect to claims 1 & 12 respectfully, Katsui teaches (see, fig. 1) a printed circuit board (10) having an electronic package (20); a retention module (30) surrounding the electronic package (20), the retention module (30) being integrally formed and defining two positioning holes (see, notation on attached fig. 1 of Katsui) at symmetrically opposite sides of a center thereof two screws (see, notation on attached fig. 1 of Katsui) threadedly screwed in holes (see,

Art Unit: 2835

notation on attached fig. 1 of Katsui) to the printed circuit board (10); a heat sink (50) and a clip (62) cooperating with the retention module (30B, 31') to secure a heat sink (50) to the retention module (30B, 31') and press the heat sink (50) against the integrated circuit package (20,21), in order to allow the heat sink (50) to be removed efficiently from a printed circuit board (10).

Further, the clip (62) in combination with the pawl (62B), serves to clip the heat sink (50) to the retention module (30b,31') and further press the entire retention module assembly toward the circuit board (10) (see, column 7, lines 26-28 of Katsui).

Although, Katsui fails to teach pins, welded to the printed circuit board, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the screws with welded pins as an alternate method of securing the module to printed circuit board.

With respect to claim 2, in regards to all the limitations of claim 1 above, Katsui teaches (see, fig. 1) a pair of locating holes (see, notation on attached fig. 1 of Katsui) corresponding to the positioning holes (see, notation on attached fig. 1 of Katsui) of the retention module (30), and the screws (40), but is silent as to the pins (40) being welded into the locating holes (see, notation on attached fig. 1 of Katsui).

Although, Katsui fails to teach pins, welded to the printed circuit board, it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the screws with welded pins as an alternate method of securing the module to printed circuit board.

Art Unit: 2835

With respect to claim 4, Katsui teaches (Fig. 3,4B) a clip (62) that comprises a pressing portion (62C) to press a heat sink (50) against the electronic package (21), and a pair of clamping portions (62B) engaging with the retention module (31B, 31') (see, column 7, lines 37-50 of Katsui).

With respect to claim 5, Katsui teaches (Fig. 1) standoff portions (30B) extending from retention module (30) to isolate the module from the printed circuit board.

With respect to claim 6, in regards to all the limitations of claims 1,4 & 5 above, Katsui teaches (Fig. 4B) a clip (62), the clamping portions (62B) extend from respective opposite sides of the pressing portion (62C) toward the printed circuit board (11), and the clamping portions (62B) form distal hooks engagingly clasping the retention module (31') (see, column 7, lines 37-50 of Katsui).

Katsui does not teach a clip made of plastic.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the clip out of a known material such as plastic, in order to use a material that is well known and readily available.

With respect to claim 7, Katsui teaches (Fig. 4B) a pair of catches (31D) integrally formed outwardly from the retention module (31') at diagonally opposite corners thereof respectively,

Art Unit: 2835

the catches (31D) engaging with the clamping portions (62B) of the clip (62) (see, column 7, lines 37-44 of Katsui).

With respect to claim 9, Katsui teaches (Fig. 4B) a pair of symmetrical catches (31D) integrally formed outwardly from opposite sides of the retention module (31'), the catches (31D) engaging with the clamping portions (62B) of the clip (62) (see, column 7, lines 37-44 of Katsui).

With respect to claim 11, Katsui teaches (see, fig. 1 of Katsui) a retention module (30B) substantially rectangular, and the two positioning holes (see, notation on attached fig. 1 located through structure of element (30B)) defined in diagonally opposite corners of the retention module (30B) (see, column 4, lines 44-53 of Katsui).

With respect to claim 13, Katsui teaches (see, fig. 1 of Katsui) pins (40) disposed at symmetrically opposite sides of a center of the retention module (30).

With respect to claim 14, in regards to all the limitations of claim 12 above, Katsui teaches (see, fig. 1 of Katsui) screws (40) in a retention module (30) and a printed circuit board (10)

Although, Katsui is silent as to pins being integrally formed from or welded to a portion of the retention module (30) facing the printed circuit board (10), it would have been obvious to one

Art Unit: 2835

having ordinary skill in the art at the time the invention was made to replace the screws with welded pins as an alternate method of securing the module to printed circuit board.

With respect to claim 15, in regards to all the limitations of claim 12 above, Katsui teaches (see, fig. 1 of Katsui) positioning holes (seem notation on attached fig. 1 of Katsui) defined in the retention module (30) and screws (40), but is silent as to first ends of the pins being welded to the printed circuit board (10).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the screws with welded pins as an alternate method of securing the module to printed circuit board.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize welded the ends of pins, in order to provide an enhanced and stronger securing means of a heat sink assembly/retention board assembly and further prevent a securing means from sliding out (or loosening) of a circuit board.

3. Claims 10 & 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsui US 5559674 in view of McHugh et al. US 6570763 B1.

Note: See attached fig. 1 & 8 of McHugh et al. for elements representing claimed limitations in the instant application.

With respect to claim 10, in regards to all the limitations of claims 1, 4 & 9 above, Katsui teaches (see, fig. 1) a printed circuit board (10) having an electronic package (20) and a heat sink (50) as stated in the above rejections to claim 1 & 9.

Katsui does not teach a clip comprising an operating portion that defines a slot.

McHugh et al. teaches an operating portion (see, notation on attached fig. 1 of McHugh et al.) of a clip (30), which defines a slot (see, notation on attached fig. 1 of McHugh et al.) and an additional operating portion (see, notation on attached fig. 8 of McHugh et al.), of clip (see, notation attached fig. 8 of McHugh et al.), which defines a slot (see, notation on attached fig. 8 of McHugh et al.), for securing a heat sink to a CPU on a circuit board (see, Abstract of McHugh et al.).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the operating portion of McHugh et al., in the invention of Katsui, in order to provide an easier means of securing a heat sink to a CPU on a circuit board. In particular, screws (92) and cover portion (84) of Katsui will be replaced, with a clip (see, notation on attached fig. 8 of McHugh et al.), secured by a catch (see, notation on attached fig. 8 of McHugh et al.) through a slot (see, notation on attached fig. 8 of McHugh et al.). A screw driver will be eliminated, and allow quick replacement of a faulty fan, in the assembly of Katsui (see, assembly of fig. 2 of Katsui).

With respect to claim 16, Katsui teaches a printed circuit board (10) having an electronic package (20) located thereon and a plurality of through holes (see, notation on attached fig. 1 of Katsui) therein, a retention module (30) surrounding an electronic package (20), pressing portion (62C) of a clip (62), a heat sink (50) and pins (40) in a retention module (30) with four corners and slots (see, notation on attached fig. 2 of Katsui) of a heat sink (50).

Katsui does not teach pressing bars extending through corresponding slots of a heat sink (50).

McHugh et al. teaches pressing bars (see, notation on attached fig. 1 of McHugh et al.) extending through corresponding slots (see, notation on attached fig. 1 of McHugh et al.) of a heat sink (70) and an additional pressing bar (see, notation on attached fig. 8 of McHugh et al.) corresponding through slots (see, notation on attached fig. 8 of McHugh et al.) of a heat sink (9) of a prior art, for securing a heat sink to a CPU on a circuit board (see, Abstract of McHugh et al.).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the pressing bars of McHugh et al., in the invention of Katsui, in order to provide an easier means of securing a heat sink to a CPU on a circuit board. In particular, screws (92) and cover portion (84) of Katsui will be replaced, with a clip (see, notation on attached fig. 8 of McHugh et al.), secured by a catch (see, notation on attached fig. 8 of McHugh et al.) through a slot (see, notation on attached fig. 8 of McHugh et al.). A screw driver will be eliminated, and

Art Unit: 2835

allow quick replacement of a faulty fan, in the assembly of Katsui (see, assembly of fig. 2 of Katsui).

4. Claim 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katsui US 5559674 in view of Bright US 5833472.

Notes: See attached fig. 3 of Bright for element representing claimed limitations in the instant application.

With respect to claim 3 recites, in regards to all the limitations of claims 1 & 2 above, Katsui teaches a screw (40), but is silent as to a blocking portion, a connection portion and a welding portion.

Bright teaches a pin (18) comprising a blocking portion, a welding portion and a connecting portion, for securing an electronic package, circuit board and socket assembly (see, fig. 3 and the Abstract of Bright).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the blocking, welding and connecting portions of Bright, in the invention of Katsui, in order to provide an enhanced and stronger securing means of a heat sink assembly/retention board assembly and further prevent a securing means from sliding out (or loosening) of a circuit board.

Response to Arguments

5. Applicant's arguments, filed 6/8/06, have been fully considered, but are not persuasive.

With respect to Applicant's argument, regarding the clip (60) of Katsui et al. not being a clip, the Examiner notes that Katsui teaches a clip (62), which functions as a clip and presses a heat sink (50) against a circuit board (10) and a retention module (30), via a pressing portion (62C), as shown in fig. 1 & 4B of Katsui.

With respect to Applicant's argument, regarding the retention section of Bright, not abutting against the holder (30), the Examiner respectfully disagrees and notes that the top surface of the blocking portion (see, notation on attached fig. 3 of Bright) abuts up against a bottom portion of element (33) (of fig. 3 of Bright). As the top surface of blocking portion (see, notation on attached fig. 3 of Bright), abuts up against the holder (30), a force is exerted on the holder (30) and allows the circuit board (8) to move toward the welding portion (see, notation on attached fig. 3 of Bright).

With respect to Applicant's arguments, regarding the combination of Bright, Perugini et al., Katsui utilizing hindsight, the Examiner notes that this argument is moot, as Perugini et al. is no longer utilized to meet limitations of the instant application.

Art Unit: 2835

Conclusion

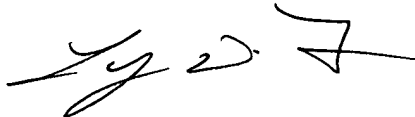
6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Lin et al. US 6396696 B1 shows the general state of the art regarding heat sink and circuit board with retention module configurations.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ingrid Wright whose telephone number is (571)272-8392. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571)272-2800, ext 35. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

IDW


LYNN FEILD
SUPERVISORY PATENT EXAMINER

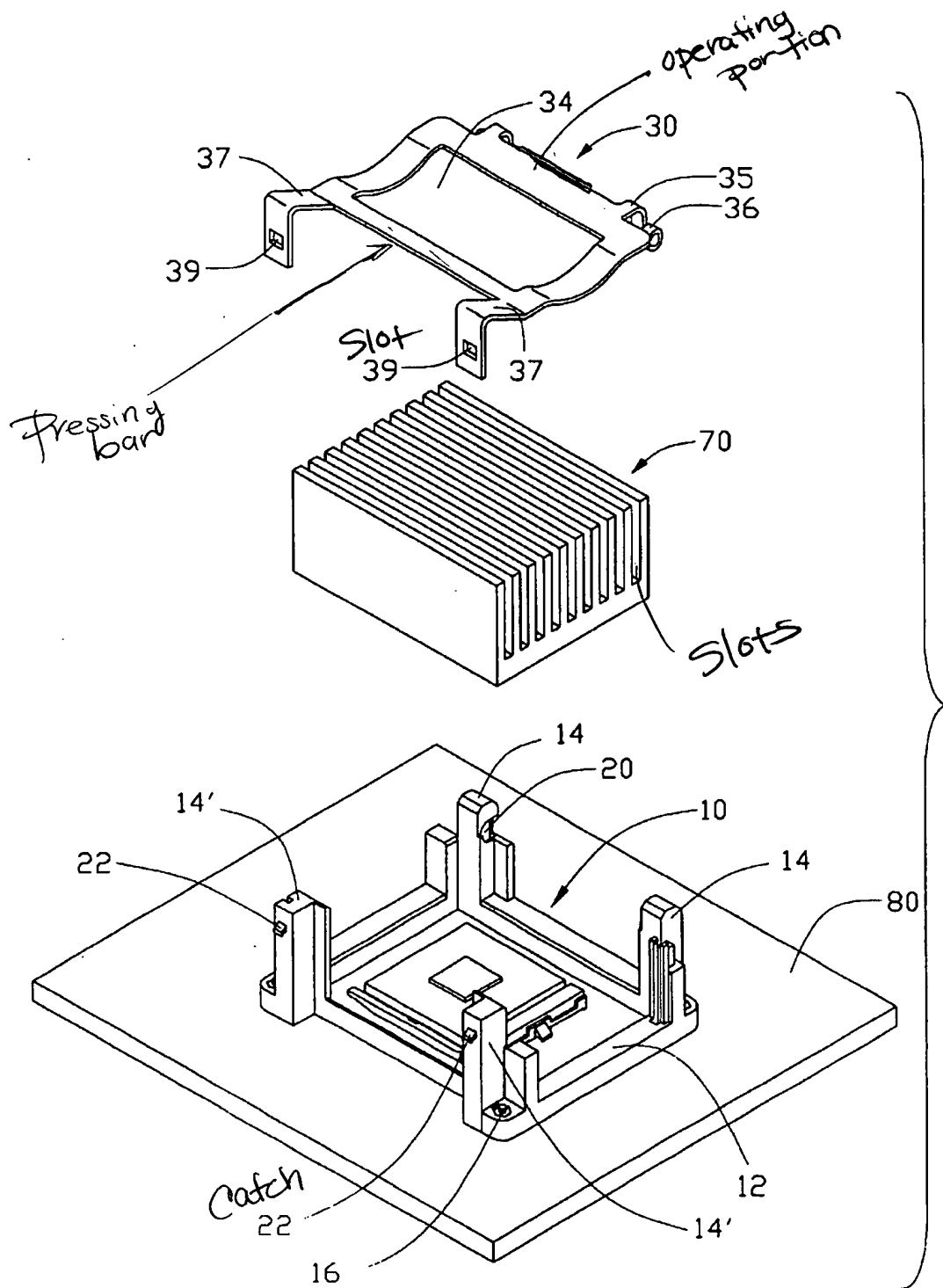


FIG. 1

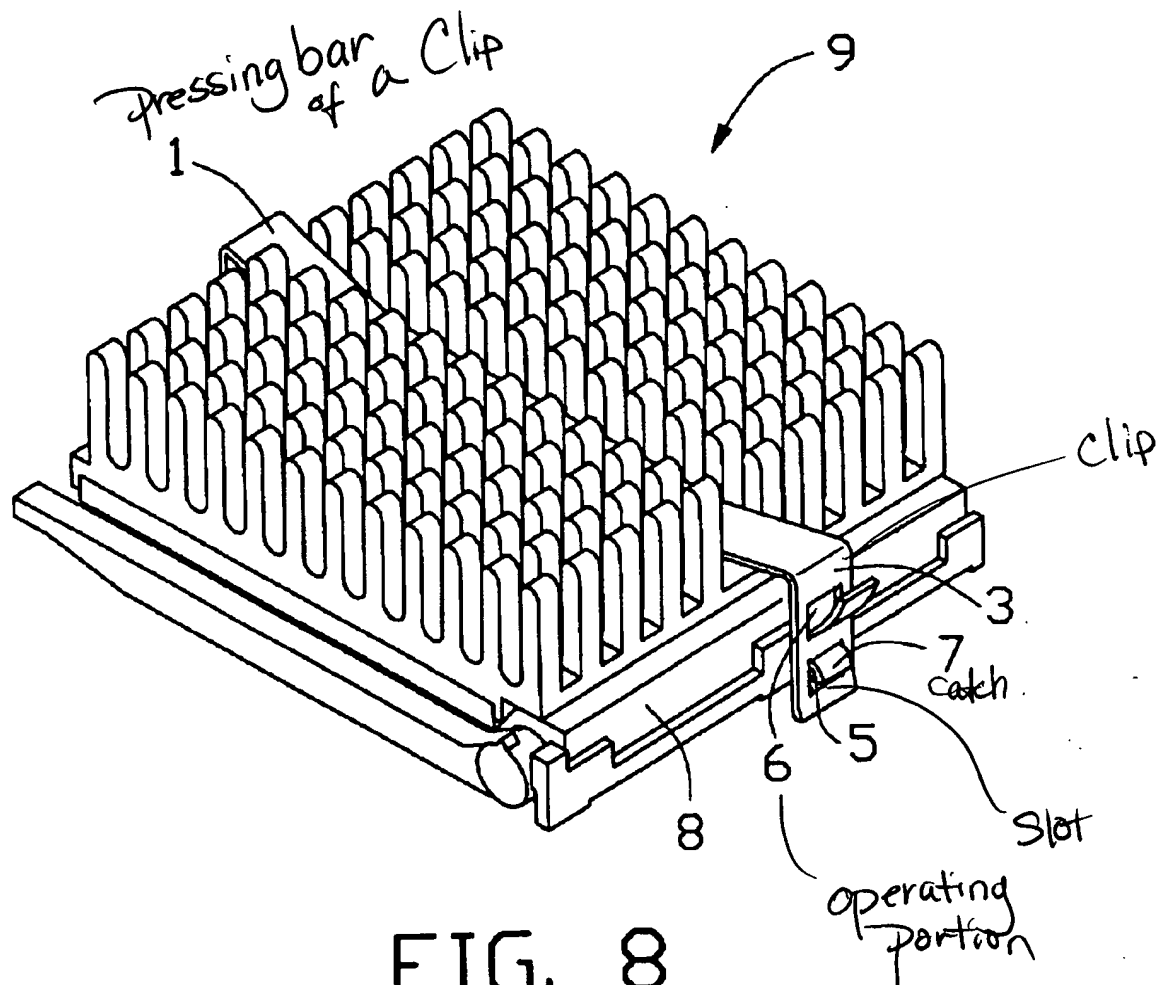


FIG. 8
(PRIOR ART)

FIG. 2

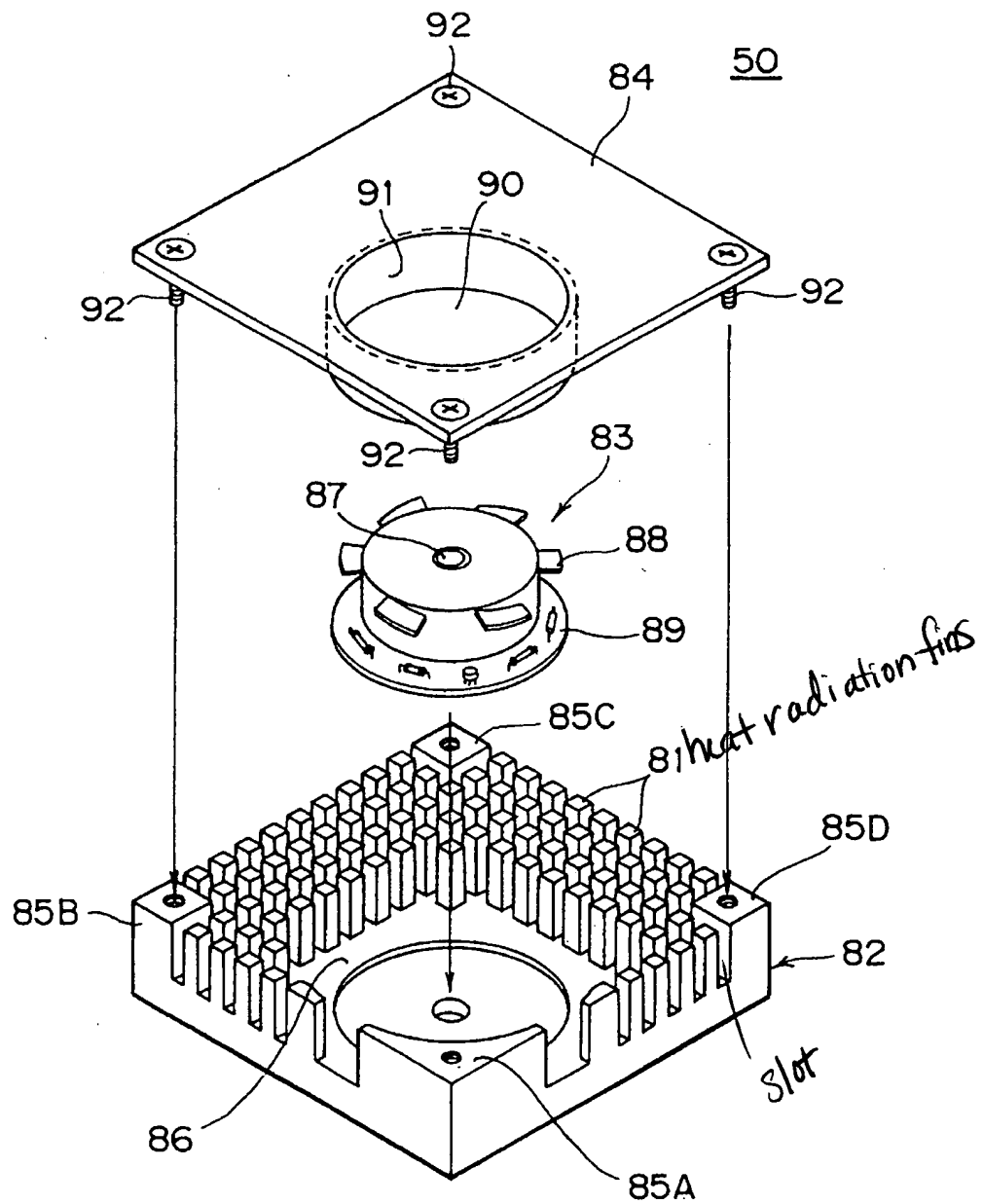


FIG. 1

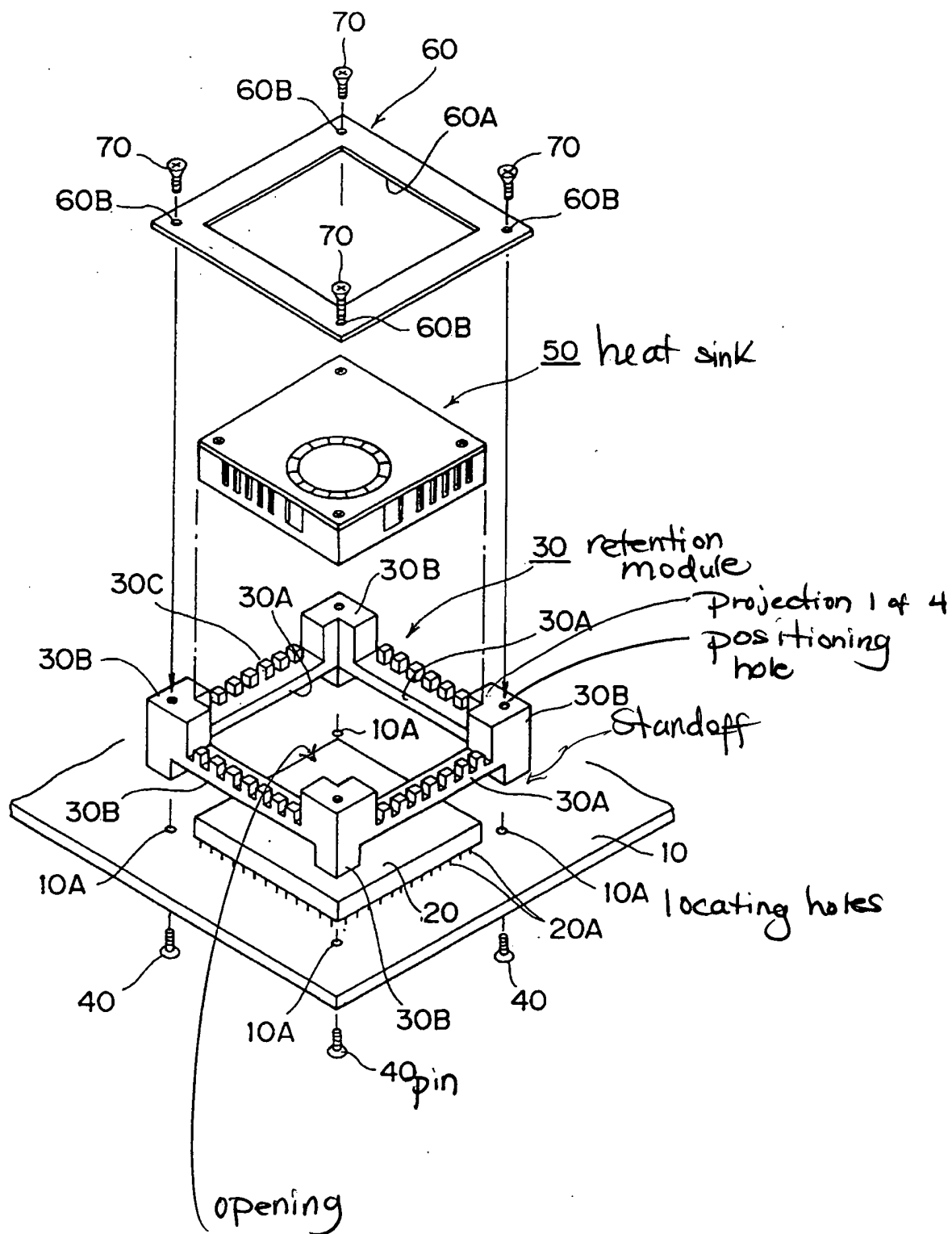


FIG. 4A

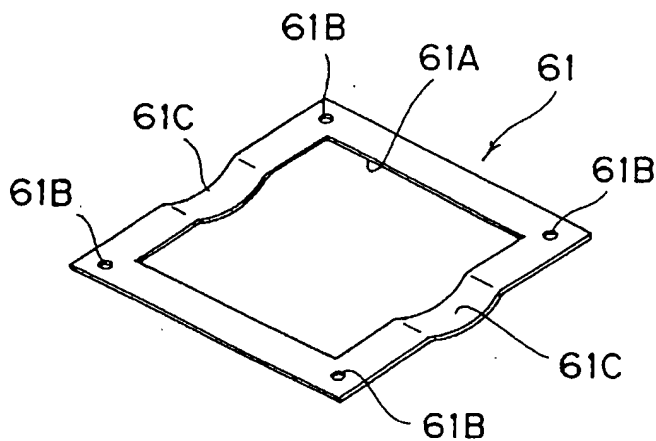


FIG. 4B

